

The damage to railroad and other property was estimated at \$500,000.

The thickness of ice in the rivers since December 4, 1899, is given in the following table. A few places show an increase since January 1, 1900, while some show a decrease, indicating a mild winter season. At the close of January, 1899, there were 3 inches of ice as far south as Kansas City, Mo., and 26 inches at La Crosse, Wis., while at the end of January of the current year there were but 9 inches at La Crosse, and very little below. Albany, N. Y., which had 10 inches at the end of January, 1899, had but 2.5 inches at the corresponding time of this year.

The highest and lowest water, mean stage, and monthly range at 125 river stations are given in Table XI. Hydrographs for typical points on seven principal rivers are shown on Chart V. The stations selected for charting are: Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.—*H. C. Frankenfield, Forecast Official.*

Thickness of ice in rivers (in inches), winter of 1899-1900.

Stations.	December.				January.				
	4	11	18	25	1	8	15	22	29
Moorhead, Minn.					12.0	19.0	21.0	24.0	26.0
Williston, N. Dak.	1.0	1.5	6.0	8.0	16.0	16.0	16.0		21.0
Bismarck, N. Dak.			1.5	9.0	16.0	17.0	17.0	15.0	17.0
Pierre, S. Dak.			1.5	8.5	14.0	15.0	10.5	8.0	14.0
Yankton, S. Dak.			5.0	7.0	10.0	11.0	10.5	8.5	10.0
Sioux City, Iowa				1.5	10.0	8.0	6.0		
Omaha, Nebr.					10.0				
St. Paul, Minn.					12.5		20.0	16.0	18.0
La Crosse, Wis.				5.0	10.0	9.0	7.5	6.0	9.0
Dubuque, Iowa			4.0	5.0	12.0	10.5	10.0		
Davenport, Iowa					8.0	9.0	6.0		
Keokuk, Iowa					10.0		5.0		
Hannibal, Mo.					8.0				
Topeka, Kans.					6.5				
Wichita, Kans.					2.0				
Pittsburg, Pa.					4.0				
Parkersburg, W. Va.					1.0	2.0			
Louisville, Ky.					5.0				
Columbus, Ohio					7.0	1.0			3.0
New Brunswick, N. J.						6.0			2.5
Bangor, Me.			2.0	2.0	4.5	8.0	9.0	12.0	14.0
Albany, N. Y.					4.0	5.0	8.5		2.5
Harrisburg, Pa.						3.0	3.0		
Philadelphia, Pa.					2.0	2.0			
Washington, D. C.					5.0				
Lynchburg, Va.					4.0	2.0			

CLIMATE AND CROP SERVICE.

By JAMES BERRY, Chief of Climate and Crop Service Division.

The following extracts relating to the general weather conditions in the several States and Territories are taken from the monthly reports of the respective sections of the Climate and Crop Service. The name of the section director is given after each summary.

Rainfall is expressed in inches.

Alabama.—The mean temperature was 44.0°, or 0.6° below normal; the highest was 74°, at Opelika on the 9th, and the lowest, 6°, at Valleyhead on the 1st. The average precipitation was 3.34, or 1.68 below normal; the greatest monthly amount, 5.81, occurred at Citronelle, and the least, 0.78, at Tallassee.—*P. P. Chaffee.*

Arizona.—The mean temperature was 49.3°, or 5.1° above normal; the highest was 90°, at Arivaca on the 7th, and the lowest, 8°, at Fort Defiance on the 29th. The average precipitation was 0.24, or 0.55 below normal; the greatest monthly amount, 1.10, occurred at Dragoon, while none fell at a number of stations.—*W. G. Burns.*

Arkansas.—The mean temperature was 43.4°, or 4.6° above normal; the highest was 78°, at Washington on the 24th, and the lowest, 1°, at Pond on the 29th. The average precipitation was 2.69, or 2.40 below normal; the greatest monthly amount, 5.59, occurred at Jonesboro, and the least, 0.29, at Prescott.

The condition of wheat is reported to be excellent.—*E. B. Richards.*

California.—The mean temperature for the State, obtained by weighting the reports from 184 stations, so that equal areas have about the same weight, was 47.9°, which was 3.6° above the January normal for the State, as determined from 152 records; the highest was 90°, at Irvine, Orange County, on the 18th; the lowest, 12° below zero, at Bodie, Mono County, on the 9th. The average precipitation for the State, as determined by the records of 186 stations, was 3.30; the deficiency, as indicated by reports from 155 stations, which have normals, was 1.21; the greatest monthly amount, 12.27, occurred at Upper Matole, Humboldt County, while none fell at Salton, Riverside County.—*G. H. Willson.*

Colorado.—The mean temperature was 29.3°, or 5.4° above normal; the highest was 74°, at Los Animas on the 23d, and the lowest, 23° below zero, at Gunnison on the 11th. The average precipitation was 0.23, much below normal; the greatest monthly amount, 1.73, occurred at Ruby, while none fell at Garnet, Los Animas, and Vilas.—*F. H. Brandenburg.*

Florida.—The mean temperature was 55.9°, or 1.9 below normal; the highest was 84°, at Nocatee on the 10th, and the lowest, 13°, at Stephensville on the 4th. The average precipitation was 3.25, or 0.45 above normal; the greatest monthly amount, 5.25, occurred at Fort Meade and Lemon City, and the least, 0.44, at Wausau.—*A. J. Mitchell.*

Georgia.—The mean temperature was 44.3°, or 1.1° below normal; the highest was 75°, at Jesup on the 7th and 8th, and the lowest, 5°, at Dahlonga on the 2d and 30th. The average precipitation was 2.91, or 1.83 below normal; the greatest monthly amount, 5.64, occurred at Clayton, and the least, 1.65, at Augusta.

The weather during the month was favorable for farming and fruit interests.—*J. B. Marbury.*

Idaho.—The mean temperature was 30.1°, or 4.2° above normal; the highest was 63°, at Oakley on the 14th, and the lowest, 18° below zero, at Chesterfield on the 1st. The average precipitation was 1.52, or 0.37 below normal; the greatest monthly amount, 8.45, occurred at Kootenia, and the least, trace, at Oakley.—*S. M. Blandford.*

Illinois.—The mean temperature was 31.7°, or 5.4° above normal; the highest was 71°, at Shobonier on the 13th and at Raum on the 14th, and the lowest, 12° below zero, at Scales Mound on the 31st. The average precipitation was 1.27, or 1.07 below normal; the greatest monthly amount, 2.41, occurred at Equality, and the least, 0.16, at Philo.

Winter wheat is thus far thought to be unharmed, for the plant previous to the cold period at the end of the month was in splendid condition, green and vigorous.—*C. E. Linney.*

Indiana.—The mean temperature was 32.6°, or 5.6° above normal; the highest was 67°, at Mount Vernon on the 15th and 17th, and the lowest, 8° below zero, at Valparaiso on the 30th and at Hammond on the 31st. The average precipitation was 1.71, or 1.28 below normal; the greatest monthly amount, 4.20, occurred at Vevay, and the least, trace, at Hammond.

The mild weather during the month was very favorable for winter crops and farm work. The cold weather during a few days at the beginning of the month apparently caused but little injury, although most fields were without snow covering. Moderate temperature and occasional rain improved wheat in many fields not injured by the hessian fly, and made the wheat look green and vigorous. Freezing and thawing had caused some wheat fields to look brown, but the roots are firm and healthy. In some fields in the southern portion the wheat never looked better at the time of the year.—*C. F. R. Wappenhans.*

Iowa.—The mean temperature was 25.6°, or about 8.5° above normal; the highest was 66°, at Ottumwa on the 4th, and the lowest, 20° below zero, at Ruthven on the 29th. The average precipitation was 0.53, or 0.69 below normal; the greatest monthly amount, 2.47, occurred at Moorar, and the least, trace, at several stations.

January was phenomenally mild and pleasant, with much less than the usual number of stormy and wintry days. During a portion of the first half of the month the soil in the central and southern district was unfrozen, and for a number of days plowing operations were carried on in numerous localities. The conditions were especially favorable for stock feeding, and securing the forage in the cornfields.—*J. R. Sage, Director; G. M. Chappel, Assistant.*

Kansas.—The mean temperature was 35.3°, or 6.6 above normal; the highest was 75°, at Coolidge on the 13th, and the lowest, 8° below zero, at Colby on the 28th. The average precipitation was 0.22, or 0.63 below normal; the greatest monthly amount, 1.06, occurred at Yates Center, while none fell at Emporia, Lakin, Lebanon, and Scott.

The ground continued moist through the month, and much of the spring plowing was done during the warm weather. Wheat is in very good condition; much of it has been pastured to prevent stooling; some

of the more tender wheat was hurt by the cold snap at the close of the month.—*T. B. Jennings.*

Kentucky.—The mean temperature was 37.2°, or 2.0° above normal; the highest was 77°, at Alpha on the 17th, and the lowest, 8° below zero, at Loretto on the 28th. The average precipitation was 2.80, or about 1.50 below normal; the greatest monthly amount, 4.94, occurred at Owenton, and the least, 1.65, at Williamsburg.

Wheat was in splendid condition up to the last week, and it is not believed that it has been injured to any serious extent by the cold weather, as it was vigorous and well rooted. The general opinion is that it is uninjured, and the crop is in the best condition for the season for many years. The fruit crops, especially peaches, many fear, have been injured by the cold spell at close of the month, following the two weeks of unusually warm weather; this, however, is problematical, as no very severe temperatures have been reported. Farm work is well up and stock are generally in very good condition. The present outlook for farming operations is very encouraging, and farmers throughout the State are very hopeful.—*H. B. Hersey.*

Louisiana.—The mean temperature was 50.0°, or 1.1° below normal; the highest was 79°, at L'Argent on the 24th, and the lowest, 12°, at Plain Dealing on the 29th. The average precipitation was 4.77, or 1.16 below normal; the greatest monthly amount, 10.68, occurred at Hammond, and the least, 1.60, at Lawrence.

The weather during the month was favorable for farming operations; a great deal of plowing has been done for potatoes, corn, and cotton, and a vast amount of work has been accomplished in the rice growing districts.—*W. T. Blythe.*

Maryland and Delaware.—The mean temperature was 33.8°, or 1.8° above normal; the highest was 69°, at Cumberland, Md., on the 23d, and the lowest, 8° below zero, at Deepark, Md., on the 4th, and at Sunnyside, Md., on the 31st. The average precipitation was 2.43, or 0.60 below normal; the greatest monthly amount, 3.79, occurred at Seaford, Del., and the least, 1.34, at Westernport, Md.

The cold wave that prevailed at the close of December and the beginning of January was somewhat damaging to wheat, there having been but little protection afforded by snow covering. Alternate freezings and thawings toward the close of the latter month lifted the soil and exposed the roots in many localities. As a whole, however, the weather conditions have been favorable. Most fields present a fresh green color, and on good soil the surface is hidden by a thick and vigorous growth. The hessian fly has been observed in nearly all districts, and while damage from this source can not be determined until the coming spring, the view held by correspondents is that it will then be confined, for the most part, to the early sown wheat.—*P. J. Wals.*

Michigan.—The mean temperature was 24.8°, or 3.8° above normal; the highest was 59°, at Berrien Springs on the 24th, and the lowest, 26° below zero, at Gladwin on the 31st. The average precipitation was 1.31, or 1.14 below normal; the greatest monthly amount, 3.99, occurred at Berrien Springs, and the least, a trace, at Port Austin.

This is the warmest January for eight years, and the driest one on record (thirteen years). On the 24th thunderstorms occurred quite generally in the southern counties, very unusual phenomena in Michigan during January. The snowfall has been light for the month and very light since the beginning of winter, greatly retarding logging and lumbering operations in the northern woods.—*C. F. Schneider.*

Minnesota.—The mean temperature was 18.4°, or about 8.0° above normal; the highest was 61°, at Milan on the 19th, and the lowest, 38° below zero, at Pokegama on the 31st. The average precipitation was 0.48, or about 0.25 below normal; the greatest monthly amount, 1.27, occurred at St. Charles, and the least, trace, at Lake Jennie.—*T. S. Outram.*

Mississippi.—The mean temperature was 45.5°, or slightly below normal; the highest was 78°, at Waynesboro on the 16th, and the lowest, 9°, at Ripley on the 2d and 3d. The average precipitation was 3.10, or about 2.50 below normal; the greatest monthly amount, 8.16, occurred at Bay St. Louis, and the least, 1.20, at Aberdeen.—*H. E. Wilkinson.*

Missouri.—The mean temperature was 34.5°, or 5.5° above normal; the highest was 77°, at Mount Vernon on the 15th, and the lowest, 9° below zero, at Maryville on the 28th. The average precipitation was 1.23, or 1.10 below normal; the greatest monthly amount, 5.21, occurred at New Madrid, and the least, trace, at Conception.

The snowfall of the month was remarkably light, very few stations in the central and northern sections reporting more than a trace, while in the southern sections, where the heaviest falls occurred, the total for the month was generally less than 1 inch. The greatest local monthly fall was 2.0 inches at Sarcosie.

Winter wheat was injured very little by the cold spell at the close of December, and the weather from January 4th to 25th being exceptionally mild, the crop continued in excellent condition until the latter date, but during the cold weather of the last six days of the month the fields were unprotected by snow and some damage by freezing is reported. The mild temperature and light precipitation were favorable for outdoor work, and considerable plowing was done for spring crops.—*A. E. Hackett.*

Montana.—The mean temperature was 28.4°, or 8.9 above normal; the highest was 68°, at Fort Benton on the 18th, and the lowest, 25° below zero, at Harlem on the 28th. The average precipitation was 0.31,

or 0.62 below normal; the greatest monthly amount, 2.51, occurred at Ovando, while none fell at Corvallis, Poplar, and Twin Bridges.

The weather has been very beneficial to the stock interests of the State; ranges have been entirely free from snow, and stock has remained in good condition without being fed hay.—*E. J. Glass.*

Nebraska.—The mean temperature was 30.2°, or about 10.0° above normal; the highest was 72°, at Loup on the 18th, and the lowest, 18° below zero, at Lynch on the 31st. The average precipitation was 0.07, the least recorded during the past 25 years, and 0.56 below normal; the greatest monthly amount, 0.82, occurred at Plattsmouth, while none fell at several stations in the southern and western portions of the State. Very little snow fell, and the ground has been uncovered the whole month.—*G. A. Loveland.*

Nevada.—The mean temperature was 35.7°, or about 7.4° above normal; the highest was 71°, at Candelaria on the 13th, and the lowest, 10° below zero, at Fenelon on the 10th. The average precipitation was 0.42, or about 0.91 below normal; the greatest monthly amount, 1.00, occurred at Elko, while none fell at several stations. The month was remarkably fine, mild, and pleasant.—*J. H. Smith.*

New England.—The mean temperature was 23.8°, or 2.1° above normal; the highest was 62°, at Voluntown, Conn., on the 20th, and the lowest, 28° below zero, at Fairfield, Me., on the 4th. The average precipitation was 4.59, or 0.71 above normal; the greatest monthly amount, 11.15, occurred at Bar Harbor, Me., and the least, 2.61, at Northfield, Vt.—*J. W. Smith.*

New Jersey.—The mean temperature was 32.4°, or 2.5° above normal; the highest was 66°, at Ocean City on the 25th, and the lowest, 5° below zero, at Charlotteburg on the 30th. The average precipitation was 3.85, or 0.19 above normal; the greatest monthly amount, 5.50, occurred at Oceanic, and the least, 2.37, at Tuckerton.

The conditions were very unfavorable for winter wheat, rye, and grasses. The frequent freezing and thawing caused much heaving of the ground, exposing the roots. The fields of grain look poor and thin, especially on high ground.—*E. W. McGann.*

New Mexico.—The mean temperature was 38.9°, or 4.7° above normal; the highest was 71°, at Mesilla Park on the 24th, the lowest, 5°, at Bluewater on the 2d, Espanola on the 28th, and East Las Vegas on the 29th. The average precipitation was 0.45, or 0.12 below normal; the greatest monthly amount, 1.35, occurred at Socorro, while at Cambray none was recorded.—*R. M. Harding.*

New York.—The mean temperature was 25.1°, or 2.4° above normal; the highest was 62°, at Bedford on the 19th, and the lowest, 20° below zero, at Lake Placid on the 1st. The average precipitation was 3.20, or 0.19 below normal; the greatest monthly amount, 6.56, occurred at Jamestown, and the least, 1.23, at Fleming.

The weather during January was not favorable for winter wheat. Over probably one-third of the State it suffered to some extent by lack of snow protection and sudden changes in temperature, the plant in places appearing brown and lifeless. About two-thirds of the correspondents, however, reported wheat in good condition at the close of the month. In many localities the outlook was very promising. Many correspondents report a good covering of snow during the entire month. Meadows were injured by heaving. Stock is wintering well. Much good ice was harvested during January.—*R. G. Allen.*

North Carolina.—The mean temperature was 40.5°, or nearly normal; the highest was 75°, at Cherryville on the 16th, and the lowest, 3° below zero, at Linville and Marshall on the 2d. The average precipitation was 3.33, or 1.00 below normal; the greatest monthly amount, 6.24, occurred at Wilmington, and the least, 1.26, at Marshall.

The condition of winter wheat generally remained excellent, though some damage was reported in consequence of the freezing temperatures at the first and last days of the month. The open winter encouraged considerable activity among farmers, and work in preparation for an early truck season is well advanced in the east.—*C. F. von Herrmann.*

North Dakota.—The mean temperature was 16.0°, or 12.8° above normal; the highest was 70°, at Medora on the 19th, and the lowest, 30° below zero, at Pembina and Woodbridge on the 30th, and at Bottineau, Minto, and Power on the 31st. The average precipitation was 0.21, or 0.35 below normal; the greatest monthly amount, 0.90, occurred at Pembina, and the least, trace, at Coalharbor, Ellendale, Oakdale, and Willow City.—*B. H. Bronson.*

Ohio.—The mean temperature was 31.1°, or 3.1° above normal; the highest was 67°, at Thurman on the 23d, and the lowest, 20° below zero, at Millport on the 29th. The average precipitation was 2.37, or 0.58 below normal; the greatest monthly amount, 4.81, occurred at Lowell, and the least, 0.35, at Dupont.

Correspondents from a few north western counties report the general prospect of the wheat crop to be good, and a few along the Ohio Valley state that the month has improved the prospect, but generally the outlook is reported to be very discouraging for even a fair yield.—*J. Warren Smith.*

Oklahoma.—The mean temperature was 41.3°, or 3.5° above normal; the highest was 82°, at Fort Sill on the 14th, and the lowest, 2°, at Tahlequah on the 1st. The average precipitation was 0.69, or 0.88 below normal; the greatest monthly amount, 1.74, occurred at Tahlequah, and the least, 0.23, at Stillwater.

The month afforded most favorable weather conditions for the growth of winter wheat. The continued moderately cool nights and excess in cloudiness caused a slow growth and good root development of the plant. Wheat is generally reported in excellent condition and affording abundant pasturage in many places to the stock. Plowing for oats is in progress, and some sowing has been done. The ground is mostly in good condition for the progress of work.—*C. M. Strong.*

Oregon.—The mean temperature was 40.5°, or 5.7 above normal; the highest was 78°, at Klamath Falls on the 3d, and the lowest, 2°, at Lonerock and Joseph on the 28th. The average precipitation was 5.05, or about 0.50 below normal; the greatest monthly amount, 17.75, occurred at Glenora; and the least, trace, at Burns.

The month was so open that quite a large amount of plowing and seeding was done on dry land. Altogether the grain prospects at the end of January have never been better, as, in general, it is well rooted and stood, vigorous, and of good color.—*G. N. Salisbury.*

Pennsylvania.—The mean temperature was 29.8°, or 2.0° above normal; the highest was 63°, at Coatesville on the 23d, and the lowest, 8° below zero, at Smethport on the 29th and at Butler on the 31st. The average precipitation was 2.64, or 0.70 below normal; the greatest monthly amount, 4.37, occurred at Warren, and the least, 1.36, at Towanda.

Grain at the close of the month appeared to have wintered well, and its general condition was a fair average.—*T. F. Townsend.*

South Carolina.—The mean temperature was 44.0°, or 0.6 below normal; the highest was 75°, at Beaufort on the 8th and 23d, and the lowest, 3°, at Liberty on the 2d. The average precipitation was 2.43, or 1.61 below normal; the greatest monthly amount, 5.65, occurred at Georgetown, and the least, 1.58, at Statesburg.

Wheat and oats were not materially injured by the freezing weather at the opening of the month, and if injured by the freeze at the close of the month the damage was not apparent. Plowing was quite general during the month, in preparation for spring planting.—*J. W. Bauer.*

South Dakota.—The mean temperature was 23.7°, or about 11° above normal; the highest was 68°, at Chamberlain on the 19th, and the lowest, 25° below zero, at Howard and Ladelle on the 31st. The average precipitation was 0.11, or about 0.57 below normal; the greatest monthly amount, 0.66, occurred at Spearfish, while none fell at Cherry Creek, Howard, Mitchell, and Wentworth.—*S. W. Glenn.*

Tennessee.—The mean temperature was 39.3°, or about 2.0° above normal; the highest was 70°, at Springfield on the 16th, and the lowest, 10° below zero, at Erasmus on the 2d. The average precipitation was 2.91, or 2.07 below normal; the greatest monthly amount, 4.98, occurred at Iron City, and the least, 1.31, at Bluff City.

The only growing crop of special importance during January was winter wheat, which made encouraging progress, and the condition at the end of the month, as a rule, was above the average for this period.—*H. C. Bates.*

Texas.—The mean temperature, determined by comparison of 46 stations distributed throughout the State, was 1.5° above the normal; the highest was 86°, at Beeville on the 8th, and the lowest, 5°, at Anna on the 29th. The average precipitation, determined by comparison of 51 stations distributed throughout the State, was 0.58 above the normal. Nearly normal conditions prevailed along the immediate coast,

over the panhandle, the extreme western portion of west Texas, and the northwestern portion of central Texas, while there was a deficiency ranging from about 1.00 to 3.34 over north and east Texas. Over the other portions of the State there was an excess, ranging from 1.00 to 3.79, with the greatest in the vicinity of San Antonio. The greatest monthly amount, 9.13, occurred at Alvin, and the least, trace, at Fort Ringgold.

The month of January was generally favorable for farming operations and much farm work was done. Vegetables along the coast were damaged some by frost and freezing weather at the close of the month, especially where unprotected. Wheat, rye, and oats are doing well and the weather was very favorable for these crops. The wheat crop is reported to be in fine condition generally.—*J. L. Cline.*

Utah.—The mean temperature was 31.6°, or 7.4° above normal; the highest was 70°, at Elgin on the 15th, and the lowest, 10° below zero, at Fort Duchesne on the 13th. The average precipitation was 0.43, or 0.73 below normal; the greatest monthly amount, 1.25, occurred at Fillmore, while none fell at Castledale. It was the warmest and driest January on record.—*L. H. Murdoch.*

Virginia.—The mean temperature was 36.6°, or slightly above normal; the highest was 76°, at Fontella on the 14th, and the lowest, 5° below zero, at Burkes Garden and Marion on the 4th. The average precipitation was 2.69, or 0.72 below normal; the greatest monthly amount, 5.08, occurred at Rocky Mount, and the least, 1.36, at Grahams Forge.

The progress of the crops throughout the month was satisfactory; winter wheat was generally reported as well rooted and making good growth.—*E. A. Evans.*

Washington.—The mean temperature was 38.3°, or 5.9° above normal; the highest was 71°, at Bridgeport on the 7th and 8th, and the lowest, 1° below zero, at Northport on the 27th. The average precipitation was 3.65, or 0.86 below normal; the greatest monthly amount, 18.18, occurred at Clearwater, and the least, 0.25, at Centerville and Ritzville.—*A. B. Wollaber.*

West Virginia.—The mean temperature was 34.5°, or 2.6° above normal; the highest was 74°, at Cairo on the 15th, 17th, and 22d, and the lowest, 10° below zero, at Oceana on the 1st. The average precipitation was 2.24, or 0.72 below normal; the greatest monthly amount, 3.60, occurred at Point Pleasant, and the least, 0.82, at Burlington.

Wheat and winter oats were reported as looking very well over the State, although complaint is made in some of the northern counties of the hessian fly. In the southern counties, during the mild spell, farmers commenced plowing for corn and oats.—*E. C. Voss.*

Wisconsin.—The mean temperature was 21.8°, or about 7.0° above normal; the highest was 57°, at Racine on the 5th, and the lowest, 26° below zero, at Medford on the 31st. The average precipitation was 0.97, or about 0.50 below normal; the greatest monthly amount, 2.50, occurred at Beloit, and the least, 0.18, at Heaford Junction.—*W. M. Wilson.*

Wyoming.—The mean temperature was 26.4°, or 4.3° above normal; the highest was 70°, at Cody on the 13th, and the lowest, 19° below zero, at Burns on the 1st. The average precipitation was 0.23, or about 0.45 below normal; the greatest monthly amount, 0.93, occurred at Bedford, while none fell at Lusk, Fort Laramie, and Wamsutter.—*W. S. Palmer.*

SPECIAL CONTRIBUTIONS.

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, etc.

The subjoined list of titles has been selected from the contents of the periodicals and serials recently received in the library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau:

Scientific American. New York. Vol. 82.

—Recent Balloon Ascensions near Paris. P. 59.

Science. New York. N. S. Vol. 11.

Hilgard, E. W. Prevention of Hail. P. 153.

Aeronautical Journal. London. Vol. 4.

—Valveless Balloon Voyage. P. 99.

B., H. A. Scientific Research in Aeronautical Problems. P. 101.

Spencer, P. Photography from Balloons. P. 103.

—Dr. K. Danilewsky's Aerial Experiments. P. 98.

—Forthcoming International Aeronautical Congress. P. 105.

—Application of Wireless Telegraphy to Balloons. P. 108.

Geographische Zeitschrift. Leipzig. 6 Jahrg.

Halle, E. von. Die klimatische Verteilung der Industrie. P. 10.

Symon's Monthly Meteorological Magazine. London. Vol. 34.

—Low Barometric Pressure on December 29, 1899 [England].

P. 177.

—Severe Frost in December, 1899. P. 181.

Meteorologische Zeitschrift. Berlin. Band 16.

Trabert, W. Die Bekämpfung der Frostgefahr. P. 529.

Lesshaft, E. Der Einfluss der Wärmeschwankungen des Norwegischen Meers auf die Luftcirculation in Europa. P. 539.

Hellmann, G. Zur täglichen Periode der Windgeschwindigkeit.

P. 546.

Blasius, R. Wilhelm Blasius. P. 555.

Kremster, V. Klima von Hannover. P. 558.

Hegyfoky, J. Die Bewölkung in den Ländern der ungarischen Krone. P. 559.

Hergesell, H. Täglicher Gang der Windgeschwindigkeit zu

Strassburg. P. 566.

Konrad, V. Ueber den Wassergehalt der Wolken. P. 566.

Richarz, F. Bemerkung über die Temperaturdifferenzen in auf-

u. absteigenden Luftströmen. P. 567.

Hann, J. Temperaturmittel für Südafrika. P. 568.

Dufour, H. Versuche und Beobachtungen über das Gefrieren des

Wassers. P. 569.

Gonzalez D. Resultate der meteorologischen Beobachtungen in

der Republik Guatemala 1856 bis 1898. P. 570.